

Greenhouse Gas Inventory Tools for States



International Emission Inventory Conference

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Abstract

In conjunction with the U.S. EPA State and Local Climate Change Program (SLCCP), 38 states and Puerto Rico have developed greenhouse gas (GHG) inventories as the first step in assessing opportunities for mitigation. The Emission Inventory Improvement Program (EIIP) offers guidance on inventory preparation that is consistent with methods used at the national level. While comprehensive, this approach is resource- and data-intensive. As part of its continuing efforts to facilitate development of state inventories, the SLCCP has developed a set of spreadsheet tools. This paper describes the tools, which cover energy, landfills, industrial processes, agricultural sources, stationary and mobile sources (of methane and nitrous oxide), and forest carbon sequestration. The tools have been developed and applied in conjunction with inventory efforts in California and Texas, are being reviewed as part of inventory updates in Pennsylvania and Maryland, and will soon be available on the EPA Global Warming Web Site (www.epa.gov/globalwarming).



Tool Development - Strategy

- ◆ States typically address climate change following a three-phase approach:
 - ➔ inventory development
 - ➔ mitigation planning
 - ➔ implementation of actions
- ◆ State inventory tools aim to increase efficiency of the inventory process to reduce the time and resources required to get states to the third phase

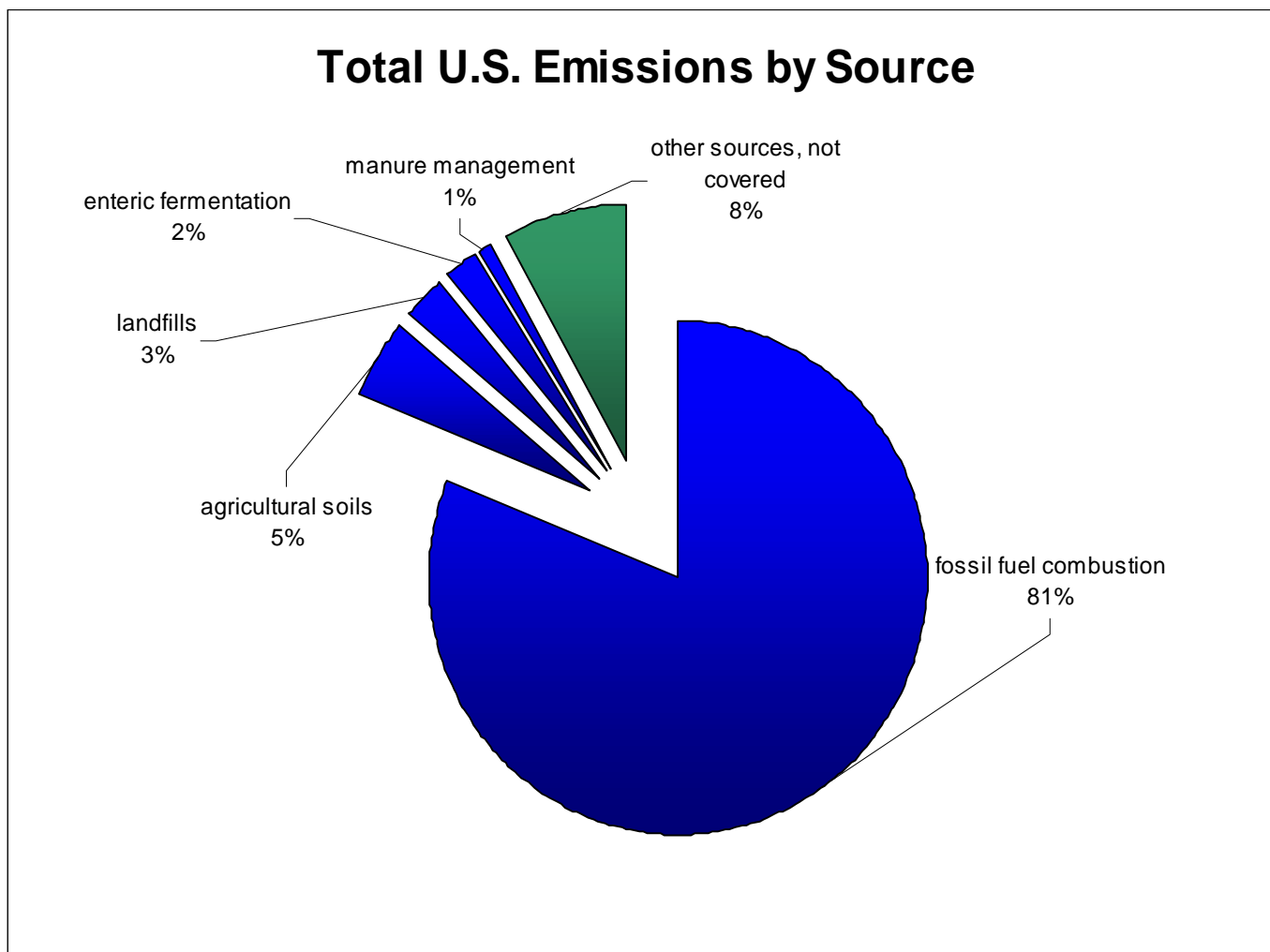


Tool Development - Scope

- ◆ Tools focus on the most significant emission sources:
 - ➔ energy
 - ➔ landfills
 - ➔ industrial processes
 - ➔ agricultural sources
 - ➔ stationary sources
 - ➔ mobile sources
- ◆ Tools will eventually cover forest carbon sequestration and other sources covered in the EIIP guidance



Emission Sources Covered by State Inventory Tools





Tool Development: Design

- ◆ Structured as Excel® workbooks
- ◆ Prompt users to input state-specific data or select default data, where available
- ◆ Macros and user-friendly displays facilitate calculation
- ◆ Emphasize transparency in calculations, allowing modifications by states where appropriate



Sample Input Sheet: Energy Tool

Microsoft Excel - Energy Module.xls

File Edit View Insert Format Tools Data Window Help

State Inventory Worksheet - CO₂ Emissions from Fossil Fuel Combustion

1. Choose a State:

This is very important - it selects the correct default variables for your state.

2. Fill in the Variables that are used throughout the Worksheet for:
Either Type in the value/percentage or Click the Default Box.

RESET ALL

Combustion Efficiencies

Fuel	Default Efficiency	Efficiency Used	Use the Default? (Check for Yes)
Coal	99.0%	99.0%	<input checked="" type="checkbox"/>
Natural Gas	99.5%	99.5%	<input checked="" type="checkbox"/>
Petroleum	99.0%	99.0%	<input checked="" type="checkbox"/>
Wood	90.0%	90.0%	<input checked="" type="checkbox"/>

Use All Defaults

Carbon Contents (lbs Carbon/million Btu)

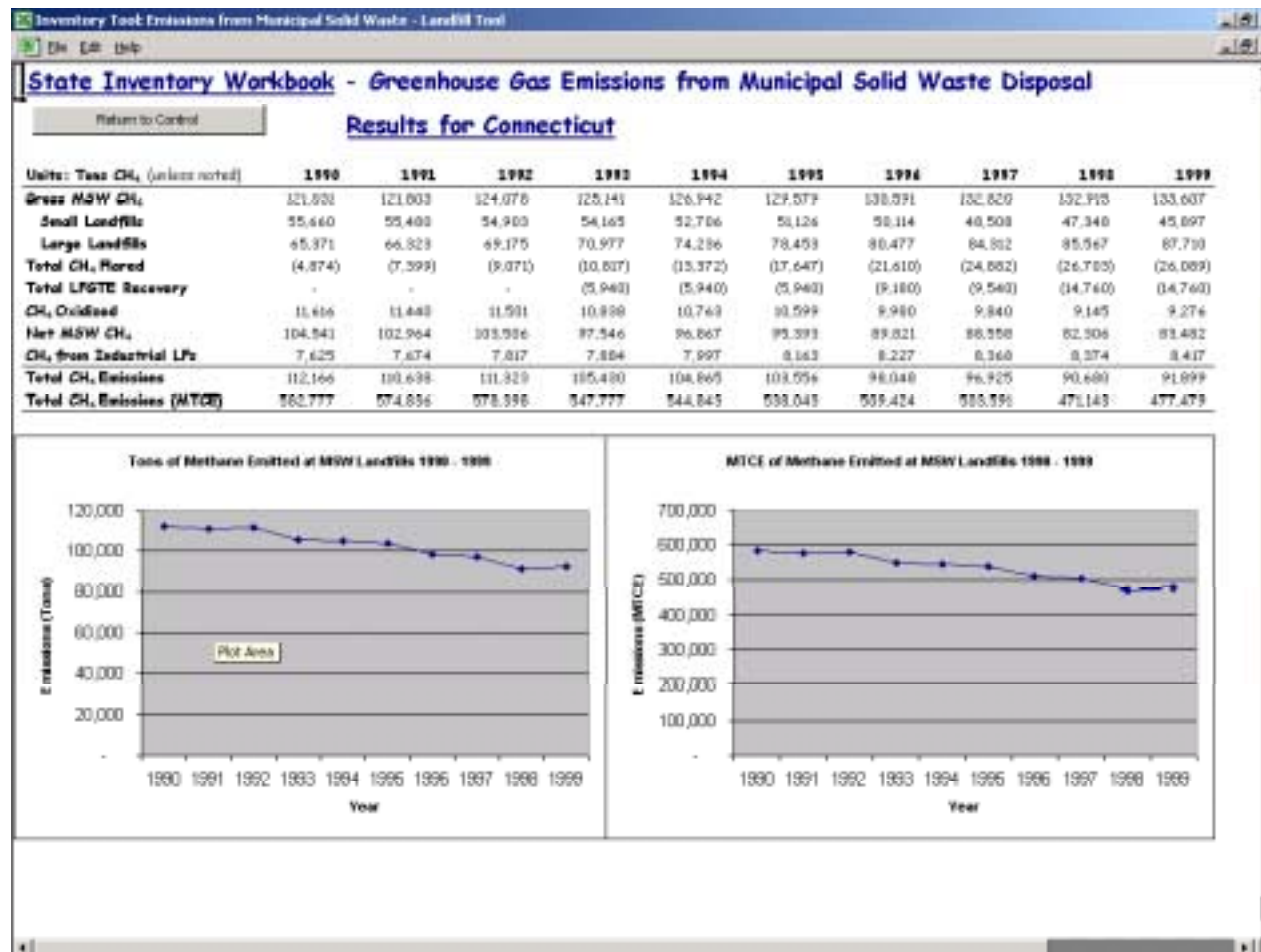
Fuel	Default Carbon Content	Carbon Content Used	Use the Default? (Check for Yes)
Asphalt and Road Oil	45.5		<input type="checkbox"/>
Aviation Gasoline	41.6		<input type="checkbox"/>
Distillate Fuel	44.0		<input type="checkbox"/>
Jet Fuel, Kerosene	43.5		<input type="checkbox"/>
Jet Fuel, Naphtne	43.5		<input type="checkbox"/>
Kerosene	43.5		<input type="checkbox"/>
LPG	37.8		<input type="checkbox"/>
Lubricants	44.6		<input type="checkbox"/>
Motor Gasoline	42.8		<input type="checkbox"/>
Residual Fuel	47.4		<input type="checkbox"/>
Misc. Petro Products	44.7		<input type="checkbox"/>
Feedstocks, Naphtne	40.0		<input type="checkbox"/>
Feedstocks, Other Oils	44.0		<input type="checkbox"/>
Pentanes Plus	40.2		<input type="checkbox"/>
Petroleum Coke	61.4		<input type="checkbox"/>
Sill Gas	38.8		<input type="checkbox"/>
Special Naphtne	43.8		<input type="checkbox"/>
Unfinished Oils	44.6		<input type="checkbox"/>
Waxes	43.7		<input type="checkbox"/>
Residential Coal	variable by year		<input type="checkbox"/>
Commercial Coal	variable by year		<input type="checkbox"/>

Use All Defaults

Control Residential Commercial Industrial Transportation Water Subsidy FT Consumption Co (+)



Sample Output Sheet: Waste Tool





Availability

- ◆ Beta versions of the following tools are under review:
 - ➔ energy
 - ➔ agriculture
 - ➔ waste
 - ➔ industrial processes
- ◆ All tools will be available online in downloadable format later this year at: www.epa.gov/globalwarming
- ◆ Eventually, EPA may make CDs available with the complete set of tools



For more information

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